WHAT IS CLAIMED IS:

1. An optical modulation element, comprising:

a liquid crystal layer having a helix pitch and held between a pair of transparent substrates having opposing transparent electrodes;

a white light source for sending white light onto a surface of one of said transparent substrates of said liquid crystal layer in an oblique direction; and

at least one flat mirror arranged outside the other one of said transparent substrates to reflect the incident light transmitted through said liquid crystal layer toward said light source.

2. An optical modulation element, comprising:

a liquid crystal layer having a helix pitch and held between a transparent substrate, having one of an electrode and an electrode group arranged to apply an electric field parallel to a surface of said substrate, and a transparent substrate opposing said substrate;

a white light source for sending white light onto a surface of one of said transparent substrates of said liquid crystal layer in an oblique direction; and

at least one flat mirror arranged outside the other one of said transparent substrates of said liquid crystal layer to reflect the incident light transmitted through said liquid crystal layer toward said light source.

3. An optical modulation element, comprising:

a liquid crystal layer having a helix pitch and held between a pair of transparent substrates having opposing transparent electrodes;

a white light source for sending white light onto a surface of one of said transparent substrates of said liquid crystal layer in an oblique direction;

a first flat mirror arranged outside the other one of said transparent substrates of said liquid crystal layer to reflect the incident light transmitted through said liquid crystal layer in an incident direction thereof; and

a second flat mirror for reflecting the light reflected by said first flat mirror and by said liquid crystal layer in the incident direction thereof.

4. An optical modulation element, comprising:

a liquid crystal layer having a helix pitch and held between a transparent substrate, having one of an electrode and an electrode group arranged to apply an electric field parallel to a surface of said substrate, and a transparent substrate opposing said substrate;

a white light source for sending white light onto a surface of one of said transparent substrates of said liquid crystal layer in an oblique direction;

a first flat mirror arranged outside the other one of said transparent substrates of said liquid crystal layer

to reflect the incident light transmitted through said liquid crystal layer in an incident direction thereof; and

a second flat mirror for reflecting the light reflected by said first flat mirror and by said liquid crystal layer in an incident direction thereof.

5. An element according to claim 3, wherein said first and second flat mirrors form an integrated mirror having an L-shaped section, or a saw-toothed mirror.

6. An element according to claim 4, wherein said first and second flat mirrors form an integrated mirror having an L-shaped section, or a saw-toothed mirror.

7. An element according to claim 5, wherein said saw-toothed mirror and the other one of said transparent substrates are integrally formed.

8. An element according to claim 6, wherein said saw-toothed mirror and the other one of said transparent substrates are integrally formed.

9. An element according to claim 1, wherein said transparent electrodes comprise transparent electrode groups divided into stripes such that a longitudinal direction thereof perpendicularly intersects an incident surface group of the incident white light.

10. An element according to claim 3, wherein said transparent electrodes comprise transparent electrode groups divided into stripes such that a longitudinal

direction thereof perpendicularly intersects an incident surface group of the incident white light.

11. An element according to claim 2, wherein said electrode group has structures divided such that a longitudinal direction thereof perpendicularly intersect an incident surface group of the incident white light, to apply an electric field, in each of said structures, substantially parallel to a substrate surface.

12. An element according to claim 4, wherein said electrode group has structures divided such that a longitudinal direction thereof perpendicularly intersect an incident surface group of the incident white light, to apply an electric field, in each of said structures, substantially parallel to a substrate surface.

13. An element according to claim 3, wherein an output optical path of a circularly polarized light beam having a selected wavelength and reflected by a liquid crystal surface of one of said transparent substrates, and an output optical path of a circularly polarized light beam having a selected wavelength and reflected by said first and second flat mirrors and the other one of said transparent substrates do not overlap each other.

14. An element according to claim 4, wherein an output optical path of a circularly polarized light beam having a selected wavelength and reflected by a liquid

crystal surface of one of said transparent substrates, and an output optical path of a circularly polarized light beam having a selected wavelength and reflected by said first and second flat mirrors and the other one of said transparent substrates do not overlap each other.

15. An element according to claim 13, wherein a rotational polarizer and a $\lambda/4$ plate are arranged in said optical path of one circularly polarized light beam of exit light while a $\lambda/4$ plate is arranged in an optical path of the other circularly polarized light beam, and exit light beams from said two optical paths are converted into one linearly polarized light beam to be output.

16. An element according to claim 14, wherein a rotational polarizer and a $\lambda/4$ plate are arranged in said optical path of one circularly polarized light beam of exit light while a $\lambda/4$ plate is arranged in an optical path of the other circularly polarized light beam, and exit light beams from said two optical paths are converted into one linearly polarized light beam to be output.

17. An element according to claim 15, wherein said $\lambda/4$ plate arranged in said optical path of one circularly polarized light beam of the exit light and said $\lambda/4$ plate arranged in said optical path of the other circularly polarized light beam comprise one $\lambda/4$ plate.

18. An element according to claim 16, wherein said

$\lambda / 4$ plate arranged in said optical path of one circularly polarized light beam of the exit light and said $\lambda / 4$ plate arranged in said optical path of the other circularly polarized light beam comprise one $\lambda / 4$ plate.

19. An element according to claim 3, wherein an output optical path of a circularly polarized light beam having a selected wavelength and reflected by a liquid crystal surface of one of said transparent substrates and an output optical path of a circularly polarized light beam having a selected wavelength and reflected by said first and second flat mirrors and the other one of said transparent substrates overlap each other at least partially.

20. An element according to claim 4, wherein an output optical path of a circularly polarized light beam having a selected wavelength and reflected by a liquid crystal surface of one of said transparent substrates and an output optical path of a circularly polarized light beam having a selected wavelength and reflected by said first and second flat mirrors and the other one of said transparent substrates overlap each other at least partially.

21. An element according to ~~any one of~~ claims ~~s~~ 1, wherein a medium having a refractive index lower than that of said liquid crystal is inserted at least one of between

said transparent substrates and said mirror and between said transparent substrates and said incident surface of the incident light.

22. An element according to ~~any one of~~ claim~~s~~ 2, wherein a medium having a refractive index lower than that of said liquid crystal is inserted at least one of between said transparent substrates and said mirror and between said transparent substrates and said incident surface of the incident light.

23. An element according to ~~any one of~~ claim~~s~~ 3, wherein a medium having a refractive index lower than that of said liquid crystal is inserted at least one of between said transparent substrates and said mirror and between said transparent substrates and said incident surface of the incident light.

24. An element according to ~~any one of~~ claim~~s~~ 4, wherein a medium having a refractive index lower than that of said liquid crystal is inserted at least one of between said transparent substrates and said mirror and between said transparent substrates and said incident surface of the incident light.

25. An element according to ~~any one of~~ claim~~s~~ 1, wherein said liquid crystal has a helix axis substantially perpendicular to a substrate surface.

26. An element according to ~~any one of~~ claim~~s~~ 2,

wherein said liquid crystal has a helix axis substantially perpendicular to a substrate surface.

27. An element according to ~~any one of~~ claims~~s~~ 3, wherein said liquid crystal has a helix axis substantially perpendicular to a substrate surface.

28. An element according to ~~any one of~~ claims~~s~~ 4, wherein said liquid crystal has a helix axis substantially perpendicular to a substrate surface.

29. An element according to ~~any one of~~ claims~~s~~ 1, wherein said liquid crystal has a helix axis substantially parallel to a substrate surface.

30. An element according to ~~any one of~~ claims~~s~~ 2, wherein said liquid crystal has a helix axis substantially parallel to a substrate surface.

31. An element according to ~~any one of~~ claims~~s~~ 3, wherein said liquid crystal has a helix axis substantially parallel to a substrate surface.

32. An element according to ~~any one of~~ claims~~s~~ 4, wherein said liquid crystal has a helix axis substantially parallel to a substrate surface.

33. An element according to ~~any one of~~ claims~~s~~ 1, wherein one of a chiral nematic liquid crystal (cholesteric liquid crystal) and a nematic liquid crystal added with a chiral material is used as a liquid crystal having said helix pitch.

34. An element according to ~~any one of~~ claims 2, wherein one of a chiral nematic liquid crystal (cholesteric liquid crystal) and a nematic liquid crystal added with a chiral material is used as a liquid crystal having said helix pitch.

35. An element according to ~~any one of~~ claims 3, wherein one of a chiral nematic liquid crystal (cholesteric liquid crystal) and a nematic liquid crystal added with a chiral material is used as a liquid crystal having said helix pitch.

36. An element according to ~~any one of~~ claims 4, wherein one of a chiral nematic liquid crystal (cholesteric liquid crystal) and a nematic liquid crystal added with a chiral material is used as a liquid crystal having said helix pitch.

37. An element according to ~~any one of~~ claims 1, wherein a chiral smectic liquid crystal such as a ferroelectric liquid crystal and an antiferroelectric liquid crystal is used as a liquid crystal having said helix pitch.

38. An element according to ~~any one of~~ claims 2, wherein a chiral smectic liquid crystal such as a ferroelectric liquid crystal and an antiferroelectric liquid crystal is used as a liquid crystal having said helix pitch.

39. An element according to ~~any one of~~ claim~~s~~ 3, wherein a chiral smectic liquid crystal such as a ferroelectric liquid crystal and an antiferroelectric liquid crystal is used as a liquid crystal having said helix pitch.

40. An element according to ~~any one of~~ claim~~s~~ 4, wherein a chiral smectic liquid crystal such as a ferroelectric liquid crystal and an antiferroelectric liquid crystal is used as a liquid crystal having said helix pitch.

41. An element according to claim 37, wherein a liquid crystal having a chiral smectic CA phase, which is an antiferroelectric phase, is used as a liquid crystal having said helix pitch.

42. An element according to claim 38, wherein a liquid crystal having a chiral smectic CA phase, which is an antiferroelectric phase, is used as a liquid crystal having said helix pitch.

43. An element according to claim 39, wherein a liquid crystal having a chiral smectic CA phase, which is an antiferroelectric phase, is used as a liquid crystal having said helix pitch.

44. An element according to claim 40, wherein a liquid crystal having a chiral smectic CA phase, which is an antiferroelectric phase, is used as a liquid crystal

having said helix pitch.

45. A color filter which selectively outputs a light beam within a desired wavelength range by using said optical modulation element according to claim 1.

46. A color filter which selectively outputs a light beam within a desired wavelength range by using said optical modulation element according to claim 2.

47. A color filter which selectively outputs a light beam within a desired wavelength range by using said optical modulation element according to claim 3.

48. A color filter which selectively outputs a light beam within a desired wavelength range by using said optical modulation element according to claim 4.

49. A color filter according to claim 45, wherein a wavelength range of the selectively output light beam is changed by controlling a voltage to be applied to said electrodes.

50. A color filter according to claim 46, wherein a wavelength range of the selectively output light beam is changed by controlling a voltage to be applied to said electrodes.

51. A color filter according to claim 47, wherein a wavelength range of the selectively output light beam is changed by controlling a voltage to be applied to said electrodes.

52. A color filter according to claim 48, wherein a wavelength range of the selectively output light beam is changed by controlling a voltage to be applied to said electrodes.

53. A liquid crystal display device obtained by combining said optical modulation element according to claim 1 and a liquid crystal display element having a shutter function.

54. A liquid crystal display device obtained by combining said optical modulation element according to claim 2 and a liquid crystal display element having a shutter function.

55. A liquid crystal display device obtained by combining said optical modulation element according to claim 3 and a liquid crystal display element having a shutter function.

56. A liquid crystal display device obtained by combining said optical modulation element according to claim 4 and a liquid crystal display element having a shutter function.

57. A device according to claim 53, wherein said optical modulation element according to claim 15 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

58. A device according to claim 53, wherein said optical modulation element according to claim 16 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

59. A device according to claim 53, wherein said optical modulation element according to claim 17 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

60. A device according to claim 53, wherein said optical modulation element according to claim 18 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

61. A device according to claim 54, wherein said optical modulation element according to claim 15 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

62. A device according to claim 54, wherein said optical modulation element according to claim 16 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

63. A device according to claim 54, wherein said optical modulation element according to claim 17 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

64. A device according to claim 54, wherein said optical modulation element according to claim 18 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

65. A device according to claim 55, wherein said optical modulation element according to claim 15 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

66. A device according to claim 55, wherein said optical modulation element according to claim 16 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

67. A device according to claim 55, wherein said optical modulation element according to claim 17 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

68. A device according to claim 55, wherein said optical modulation element according to claim 18 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

69. A device according to claim 56, wherein said optical modulation element according to claim 15 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

70. A device according to claim 56, wherein said optical modulation element according to claim 16 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

71. A device according to claim 56, wherein said optical modulation element according to claim 17 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

72. A device according to claim 56, wherein said optical modulation element according to claim 18 is used as said optical modulation element, and a liquid crystal display element utilizing polarization is used as said liquid crystal display element.

73. A device according to claim 53, which performs field sequential display.

74. A device according to claim 54, which performs field sequential display.

75. A device according to claim 55, which performs field sequential display.

76. A device according to claim 56, which performs field sequential display.

77. A device according to claim 73, wherein said optical modulation element according to claim 9 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

78. A device according to claim 73, wherein said optical modulation element according to claim 10 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an

incident surface of the incident light.

79. A device according to claim 73, wherein said optical modulation element according to claim 11 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

80. A device according to claim 73, wherein said optical modulation element according to claim 12 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

81. A device according to claim 74, wherein said optical modulation element according to claim 9 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure

group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

82. A device according to claim 74, wherein said optical modulation element according to claim 10 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

83. A device according to claim 74, wherein said optical modulation element according to claim 11 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

84. A device according to claim 74, wherein said optical modulation element according to claim 12 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal

display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

85. A device according to claim 75, wherein said optical modulation element according to claim 9 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

86. A device according to claim 75, wherein said optical modulation element according to claim 10 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

87. A device according to claim 75, wherein said optical modulation element according to claim 11 is used

as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

88. A device according to claim 75, wherein said optical modulation element according to claim 12 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

89. A device according to claim 76, wherein said optical modulation element according to claim 9 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

90. A device according to claim 76, wherein said optical modulation element according to claim 10 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

91. A device according to claim 76, wherein said optical modulation element according to claim 11 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a longitudinal direction which perpendicularly intersects an incident surface of the incident light.

92. A device according to claim 76, wherein said optical modulation element according to claim 12 is used as said optical modulation element, and sequential scanning is performed by synchronizing said liquid crystal display element and said optical modulation element having one of a transparent electrode group and an electrode structure group, said optical modulation element having a

longitudinal direction which perpendicularly intersects an incident surface of the incident light.